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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF	:
THOMAS ARNDT, ET AL.	: EXAMINER: NUTTER, N. M.
SERIAL NO: 10/590,932	:
FILED: AUGUST 28, 2006	: GROUP ART UNIT: 1796
FOR: POLYMER MIXTURE CONSISTING OF AN IMPACT-RESISTANCE MODIFIED POLY(METH)ACRYLATE AND A FLUOROPOLYMER	:

APPEAL BRIEF

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

This is an appeal of the Final Rejection dated February 5, 2010 of Claims 20-29, 35 39 and 40. A Notice of Appeal was timely filed April 19, 2010.

I. REAL PARTY IN INTEREST

The real party in interest in this appeal is Evonik Degussa GmbH, having an address at Rellinghauser Strasse 1-11, 45128 Essen, Germany.

II. RELATED APPEALS AND INTERFERENCES

Appellants, Appellants' legal representative and the assignee are aware of no appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF THE CLAIMS

Claims 20-29, 35, 39 and 40 stand rejected and are herein appealed. Claims 1-19 have been canceled. Claims 30-34 and 36-38 stand withdrawn from consideration.

IV. STATUS OF THE AMENDMENTS

No amendment under 37 CFR 1.116 has been filed.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

A summary of the claimed subject matter on appeal, as claimed in independent Claim 20, is mapped out below, with reference to page and line numbers in the specification added in **[bold]** after each element.

A molding having a material thickness of at least 150 μm, **[page 3, lines 30-31]** and obtained from a composition comprising a polymer mixture comprising (1) an impact-modified poly(meth)acrylate polymer which is a poly(meth)acrylate matrix with elastomer particles distributed therein, and (2) a fluoropolymer, the proportion of the fluoropolymer in the polymer mixture being from 30 to 95% by weight, **[page 3, lines 32-37]** wherein

the impact-modified poly(meth)acrylate polymer consists of from 20 to 70% by weight of the poly(meth)acrylate matrix and from 80 to 30% by weight of the elastomer particles. **[page 4, lines 5-8]**

VI. GROUNDS OF REJECTION

Claims 21-29, 35, 39 and 40 stand rejected under 35 U.S.C. § 103(a) as unpatentable over US 2004/0086721 (Bonnet et al).

VII. ARGUMENT

Claims 21-29, 35, 39 and 40 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Bonnet et al. That rejection is untenable and should not be sustained.

As recited in Claim 20, an embodiment of the active claims is a molding **having a material thickness of at least 150 μm**, and obtained from a composition comprising a polymer mixture comprising (1) an impact-modified poly(meth)acrylate polymer which is a poly(meth)acrylate matrix with elastomer particles distributed therein, and (2) a fluoropolymer, the proportion of the fluoropolymer in the mixture being from 30 to 95% by weight, wherein

the impact-modified poly(meth)acrylate polymer consists of from 20 to 70% by weight of the poly(meth)acrylate matrix and from 80 to 30% by weight of the elastomer particles.

(Emphasis added.)

As described in the specification beginning at page 3, line 1, individual and composite films of the prior art, especially those which consist of fluoropolymers in a mixture with impact-modified poly(meth)acrylates, have excellent properties but run into undesired embrittlement, compared to thinner films, when the material thickness of the films reaches 150 μm or more. Applicants are able to successfully address this problem by the above-emphasized limitation of the present claims wherein the impact-modified poly(meth)acrylate polymer consists of at least 30% by weight of elastomer particles.

The significance of both the minimum thickness and the minimum amount of elastomer particles is demonstrated by the comparative data in the specification. Films of various compositions and thicknesses were formed, and were tested for various properties as shown in the table at page 32 of the specification, reproduced below:

Fractions [% by weight]							
Ex.	PMMA [%]	PVDF [%]	Film thickness [μm]	Elastomer particle content of the PMMA fraction [%]	Elongation at break without thermal stress [%]	Elongation at break after 10 days at 60°C [%]	Ratio of after/without thermal stress [%]
A	30	70	500	6 5	262	177	68
A-Comp.	30	70	500	0	293	14	5
B	30	70	250	65	299	292	98
B-Comp.	30	70	250	0	442	7	2
C-Comp.	30	70	50	65	355	305	86
D-Comp.	30	70	50	0	393	321	82
E	40	60	200	60	273	205	75
F	40	60	200	40	357	292	82
G-Comp.	40	60	200	20	331	9	3

Particularly pertinent is Comparative Example G, which shows that when the elastomer particle content is below the presently-recited minimum of 30%, elongation at break after 10 days at 60°C is only 9%, according to the protocol described in the specification at page 25, line 35 to page 26, line 18. The ratio of after/without thermal stress is only 3%, which value is arrived at by dividing the elongation at break after 10 days at 60°C (9) by the elongation at break without thermal stress (331). Compare to Examples E and F. Compare also to Comparative Examples C and D, which show that at a minimum film thickness, i.e., 50 μm, the presence or absence, respectively, of elastomer particles has no significant effect on the physical properties of the film, which physical properties are comparable to those achieved with the present invention at a minimum thickness of 150 μm.

Bonnet et al could not have predicted the above-discussed results.

Bonnet et al discloses a composition suitable as an adhesive layer coextrudable with polyvinylidene fluoride (PVDF) [0012] comprising 20 to 40 parts of PVDF, 40 to 60 parts of PMMA (methylmethacrylate homopolymers or methylmethacrylate copolymers with a copolymerizable monomer and also blends with an acrylate rubber [0010]), 5 to 18 parts of an acrylic elastomer, 1 to 4 parts of a UV absorber, the total making 100 parts an adhesive

layer [0013]-[0017]. Bonnet et al discloses further that the thickness of the PVDF layer is advantageously between 2 and 50 μm and that of the coextrudable composition between 10 and 100 μm [0063]. It is noted further that in all the coextruded films of the examples according to Bonnet et al's invention, the total thickness in each example is only 50 μm.

Thus, Bonnet et al does not disclose a film having the presently-recited minimum thickness, and thus does not recognize the significance of the elastomer particle content at such higher thicknesses.

In the Final Rejection, the Examiner finds that the thickness of the final product would be a design choice and thus it would have been obvious to make the film of Bonnet et al thicker, relying on *In re Rose*, 105 USPQ 237 (CCPA 1955) for the proposition that changes in size is generally considered to be within the ordinary level of skill in the art.

In reply, if one of ordinary skill in the art were to do so, and being charged with the knowledge of a person so skilled, he or she would have expected the undesired embrittlement discussed above. Thus, one would not have increased the thickness. But if it could be argued that one would have increased the thickness, with the expectation of undesired embrittlement, one would have been totally surprised of lack of embrittlement when operating within the parameters of the present claims. Either way, the claims are patentable over Bonnet et al.

Claim 39

Claim 39 is separately patentable since the range recited therein is outside the corresponding range in Bonnet et al.

As discussed above, Bonnet et al discloses 20 to 40 parts of PVDF per 100 parts of adhesive layer, which is outside of the 50-70% range of this claim.

In the Final Rejection, the Examiner finds that Bonnet et al discloses [0050]-[0061] percentages that overlap those of the present claims.

In reply, it has been shown above that the finding is clearly erroneous.

Claim 40

Claim 40 is separately patentable since the range recited therein is outside the corresponding range in Bonnet et al. As discussed above, Bonnet et al discloses 40 to 60 parts of PMMA and 5 to 18 parts of acrylic elastomer and thus, the content of elastomer to elastomer and PMMA combined is from 5/(60 + 5) to 18/(40 + 18), or about 1.5% to 31%, which is outside of the 70-50% range of this claim.

In the Final Rejection, the Examiner finds that Bonnet et al discloses [0050]-[0061] percentages that overlap those of the present claims.

In reply, it has been shown above that the finding is clearly erroneous.

For all the above reasons, it is respectfully requested that this rejection be REVERSED.

VIII. CONCLUSION

For the above reasons, it is respectfully requested that the rejections be REVERSED.

Respectfully submitted,

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CLAIMS APPENDIX

Claim 20. A molding having a material thickness of at least 150 μm, and obtained from a composition comprising a polymer mixture comprising (1) an impact-modified poly(meth)acrylate polymer which is a poly(meth)acrylate matrix with elastomer particles distributed therein, and (2) a fluoropolymer, the proportion of the fluoropolymer in the polymer mixture being from 30 to 95% by weight, wherein

the impact-modified poly(meth)acrylate polymer consists of from 20 to 70% by weight of the poly(meth)acrylate matrix and from 80 to 30% by weight of the elastomer particles.

Claim 21. The molding as claimed in claim 20, wherein the elastomer particles have a core of a soft elastomer phase and a hard phase bonded thereto.

Claim 22. The molding as claimed in claim 20, wherein the mean particle diameter of the elastomer particles is from 10 to 1000 nm.

Claim 23. The molding as claimed in claim 20, wherein said composition consists entirely of said polymer mixture.

Claim 24. The molding as claimed in claim 23, wherein the material thickness is from 150 to 10 000 μm.

Claim 25. The molding as claimed in claim 24, wherein the elongation at break after storage at 60°C for 10 days is at least 150%.

Claim 26. The molding as claimed in claim 24, wherein the elongation at break after storage at 60°C for 10 days is still at least 60% of the value without 10-day thermal stress.

Claim 27. The molding as claimed in claim 24, which is in the form of a film, and wherein the film is present within a membrane structure, said membrane structure comprising at least two curved films welded to one another at the edges and enclosing a cavity.

Claim 28. A process for producing the molding as claimed in claim 24, comprising thermoplastic processing, extrusion or injection molding, or solvent casting said composition.

Claim 29. A method comprising forming the molding as claimed in claim 24 as a roofing element, façade element, or a window in a folding roof for a vehicle with foldable soft top.

Claim 35. The molding as claimed in claim 20, wherein from 0.01 to 10% by weight of a light stabilizer is present therein.

Claim 39. The molding as claimed in claim 20, wherein the proportion of the fluoropolymer in the polymer mixture is from 50 to 70% by weight.

Claim 40. The molding as claimed in claim 20, wherein the elastomer particles are present in an amount of 70 to 50% by weight of the impact-modified poly(meth)acrylate polymer.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.